

[54] **EXERCISING DEVICE**
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 [58] Field of Search..... **128/25 R, 70; 272/58, 79 R, 272/72**

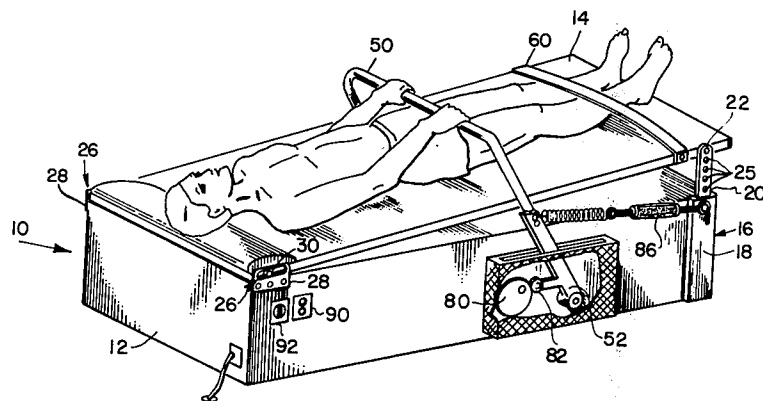
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[57] **ABSTRACT**
 An inclinable exercise bench is provided with a motorized bar positioned laterally above the bench so that a user reclining on the bench may grasp it. The bar is oscillated in a generally fore and aft direction allowing a user holding it to be raised to a sitting position on the bench. The user then returns to a reclining position and the bar is again moved forward providing continuous exercise.

3 Claims, 3 Drawing Figures



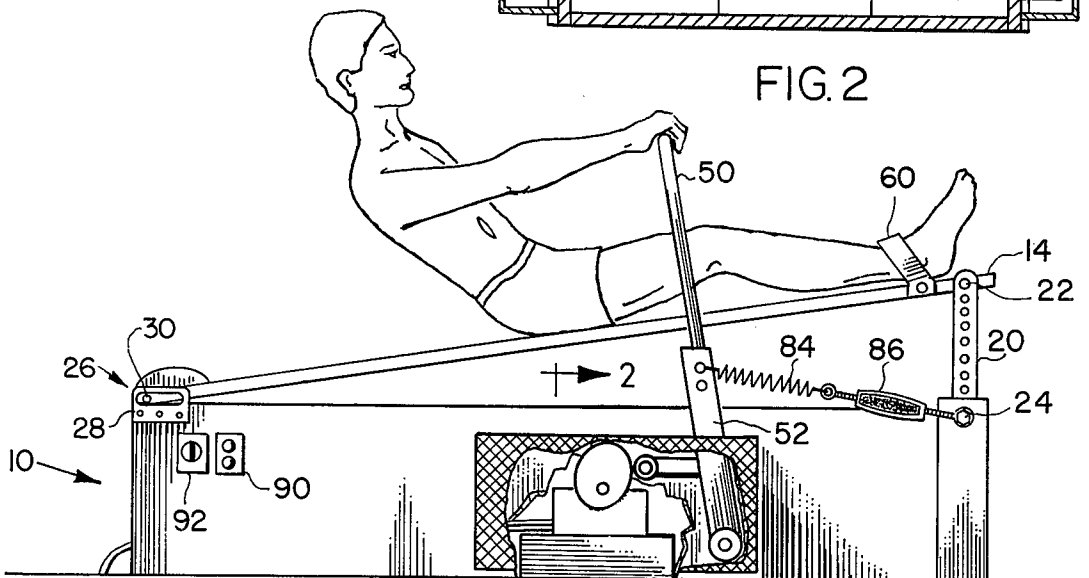
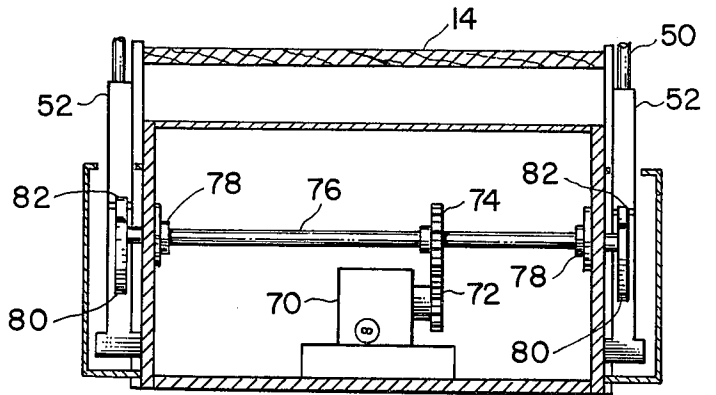
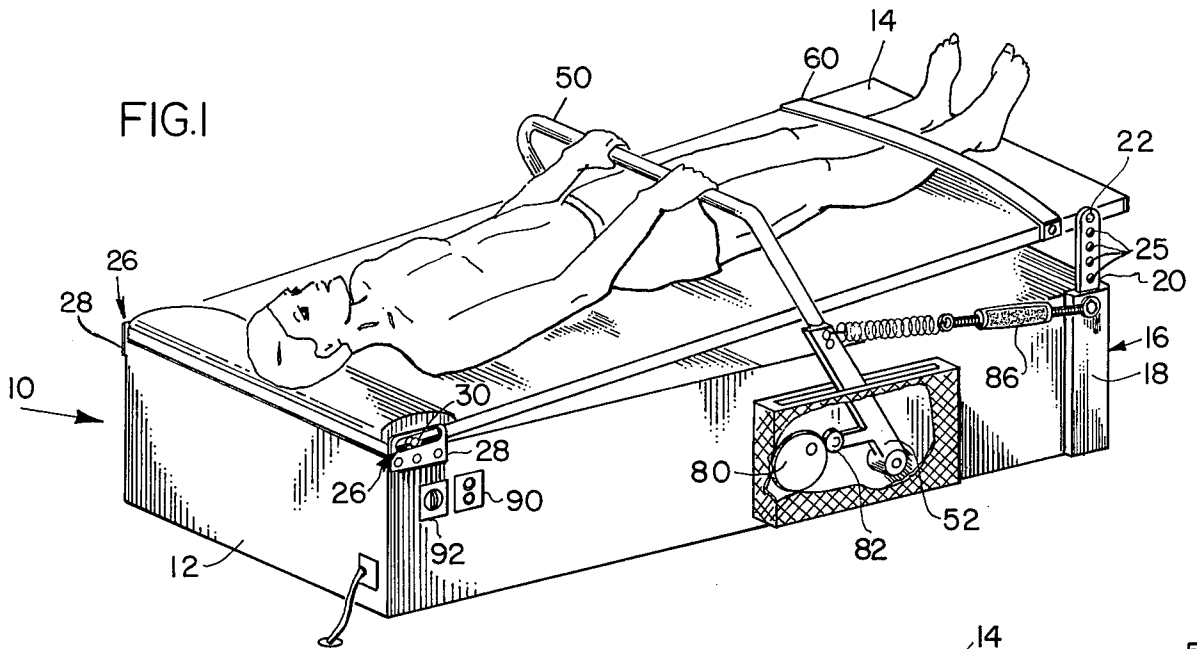


FIG. 3

EXERCISING DEVICE

BACKGROUND OF THE INVENTION

The use of inclined exercise benches upon which the user may perform sitting up exercises entirely under his own power is well known. Also known are devices wherein a user acts against some retarding force such as a weight or a pneumatic cylinder whereby the user must overcome such retarding force in performing his exercises or calisthenic program. The aim of the present invention is to provide a device which will permit the semi-incapacitated or semi-ambulatory user to benefit from such exercises when he is not physically able to do so without assistance.

SUMMARY OF THE INVENTION

This invention relates to exercising devices and deals more particularly with a device which combines isometric exercise with conventional exercise in that the user exerts force on a powered bar in opposition to the motion of the bar as he is being raised from a reclining to a sitting position and then allowed to return to a reclining position as a result of his holding the bar.

The exercising device includes an inclined bench and a bar positioned laterally a distance above the bench and driven in a fore and aft direction. A user lies supine on the bench and grasps the bar above him. As the bar oscillates, the user is alternately pulled to a sitting up position and then allowed to recline again. The action of moving between the reclining and sitting position is an exercise primarily for the muscles of the abdomen and back. The reaction of the user pulling or pushing on the bar in opposition to its motion is an isometric exercise primarily for the muscles of the arms and shoulders.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an exercising device according to the present invention showing a user in a reclining position.

FIG. 2 is a vertical sectional view of the device shown in FIG. 1 being taken on the line 2—2 of FIG. 3.

FIG. 3 is a side elevational view of the device with a portion of the side cut away showing the motor and associated drive means, the user being shown in the process of being raised forward in a sitting position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to the drawing in greater detail, FIG. 1 shows an exercising device constructed in accordance with the present invention wherein said device includes a bench 10 comprising a rectangular upper surface defining the bench top 14 adapted to accommodate a user in a reclining position, and a base portion 12 adapted to rest on the floor and having a height sufficient to accommodate the motor 70 and associated drive means 72, 74, 76 and 78 as shown in FIG. 2. Preferably, and as shown in FIGS. 1 and 3, at the end of the bench associated with the user's head, the top is mounted to the base by means of a pin and slot arrangement as indicated generally at 26. At the opposite end, or foot of the bench, the top is mounted by means of telescopic supports 16, which permit the longitudinal inclination of the top to be varied with respect to the horizontal.

The pin and slot arrangement 26 comprises a pin 30 connected to and extending laterally from bench top 14

and a bracket 28 associated with the base 12 having a longitudinal slot adapted to accept the pin 30 for sliding and pivoting motion. This arrangement permits the head end of top 14 to pivot and slide longitudinally with respect to the base 12 so that the telescopic supports 16, 16 can provide the necessary adjustments. Each telescopic support 16, 16 comprises a fixed portion 18 associated with the base 12 and an adjustable portion 20 pivotally connected to the foot end of the top 14. The pin 24 is inserted through an opening in the fixed portion 18 and through one of several openings, as generally indicated at 25, in the adjustable portion 20 in order to raise the foot of the top to the desired height with respect to the base thereby establishing its longitudinal inclination.

Finally, it will be noted that brackets 28, 28 mounted on the base portion 12 will restrain the bench top 14 against lateral movement with respect to the base.

In accordance with the present invention, a generally L-shaped bar includes an upper portion which extends laterally across the bench top, and which comprises gripping means for the use of the person reclining on the bench top in accomplishing the exercising schedule prescribed for him. Preferably, and as shown, the generally L-shaped bar actually comprises a U-shaped upper member 50 which has its leg portions slidably received in support members 52, 52, which support members are in turn pivotally mounted to the base portion of the bench. It will be apparent that although a U-shaped gripping means is provided as indicated generally at 50 in FIG. 1, an L-shaped bar could be substituted therefore if one support 52 on one side of the base portion 12 were to be so constructed as to provide the requisite strength for such an arrangement. The U-shaped member 50 is telescopically received in the supports 52, 52 in order to permit the device to be fitted to the particular user, and also to permit the height of the bar 50 to be varied in accordance with the inclination of the top 14 with respect to the base.

As is conventional practice in such exercising devices, a restraining strap 60 is preferably provided at the foot portion of the bench top in order to restrain the user's feet while utilizing the exercising device. Means is provided for moving the gripping member 50 in a generally longitudinal direction relative to the bench top 14 in oscillating motion which will result in the user being raised from the supine position shown in FIG. 1 to the sitting position shown in FIG. 3 and then being allowed to return to his reclining position after which time he is again raised in a cyclical fashion for as long as the device is operated.

As shown in FIG. 2, the drive means comprises a motor 70 mounted laterally within the base 12 and connected through gears 72 and 74 to a cam shaft 76. The cam shaft 76 extends laterally through the sides of the base 12 and is supported for rotation by bearings 78, 78 mounted on the sides of the base 12. Eccentric cams 80, 80 are attached at each end of the cam shaft 76 exterior to the base 12. Associated with the supports 52, 52 are cam followers 82, 82 adapted to engage cams 80, 80. As apparent from the figures, rotation of the cam shaft 76 will cause the cam followers 82, 82 to reciprocate resulting in arcuate oscillation of supports 52, 52 and bar 50 in the desired, generally longitudinal direction.

Preferably, and as shown in FIGS. 1 and 3, an on-off switch 90 and a motor speed control 92 are provided

on the base 12 to control the operation of the exercising device. A spring 84 acts between the fixed base support 52 and the member 50 to urge it from the positions shown in FIGS. 1 and 3 toward a limit position (not shown) wherein the user is sitting upright on the bench. A turnbuckle 86 permits the force of said spring to be varied as required to accommodate users to various weight and various degrees of physical ability.

I claim:

1. An exercising device comprising a generally horizontally extending base, which base has a head portion and a foot portion, an elongated top for said base, means pivotally connecting said top to said base head portion, means connecting the opposite end of said top to said base foot portion so that the height of said top and its inclination with respect to the horizontal can be varied, a generally L-shaped bar one leg of which extends laterally across the bench top and in spaced relationship above said top, said L-shaped bar having another leg extending downwardly toward said base between said head and foot portions thereof, means pivotally connecting said downwardly extending leg to said base, biasing means for urging said bar toward said base foot portion with a force which the user can overcome

by gripping said laterally extending leg and attempting to assume a supine position on said top, and drive means for positively moving said laterally extending leg toward said foot portion to raise the user toward a sitting position, said drive means being so arranged that the user must himself exert a force on said leg to overcome said biasing means in order to be returned to such supine position.

2. The exercising device according to claim 1 wherein said drive means more particularly comprises a cam means rotatably mounted in said base, motor means for rotating said cam means, and cam follower means on said pivotally mounted leg engageable with said cam means as a result of the force exerted by the user.

3. The exercising device according to claim 1 wherein said biasing means for urging said bar toward said base foot portion comprises at least one tension spring one end of which is connected to said pivotally mounted leg, and a variable length link connecting the other end of said tension spring to said foot portion of said base whereby the biasing force of said spring can be varied by varying the length of said link.

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